GrummanWorld

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Congress Soon To Debate E-2C Multiyear Buy

The E-2C Hawkeye will be on the agendas of both the House and Senate Armed Services Committees in upcoming weeks. The subject up for debate: the multiyear purchase of 36 E-2C's, which will save the government about $300 million, or 15 percent, over four years.

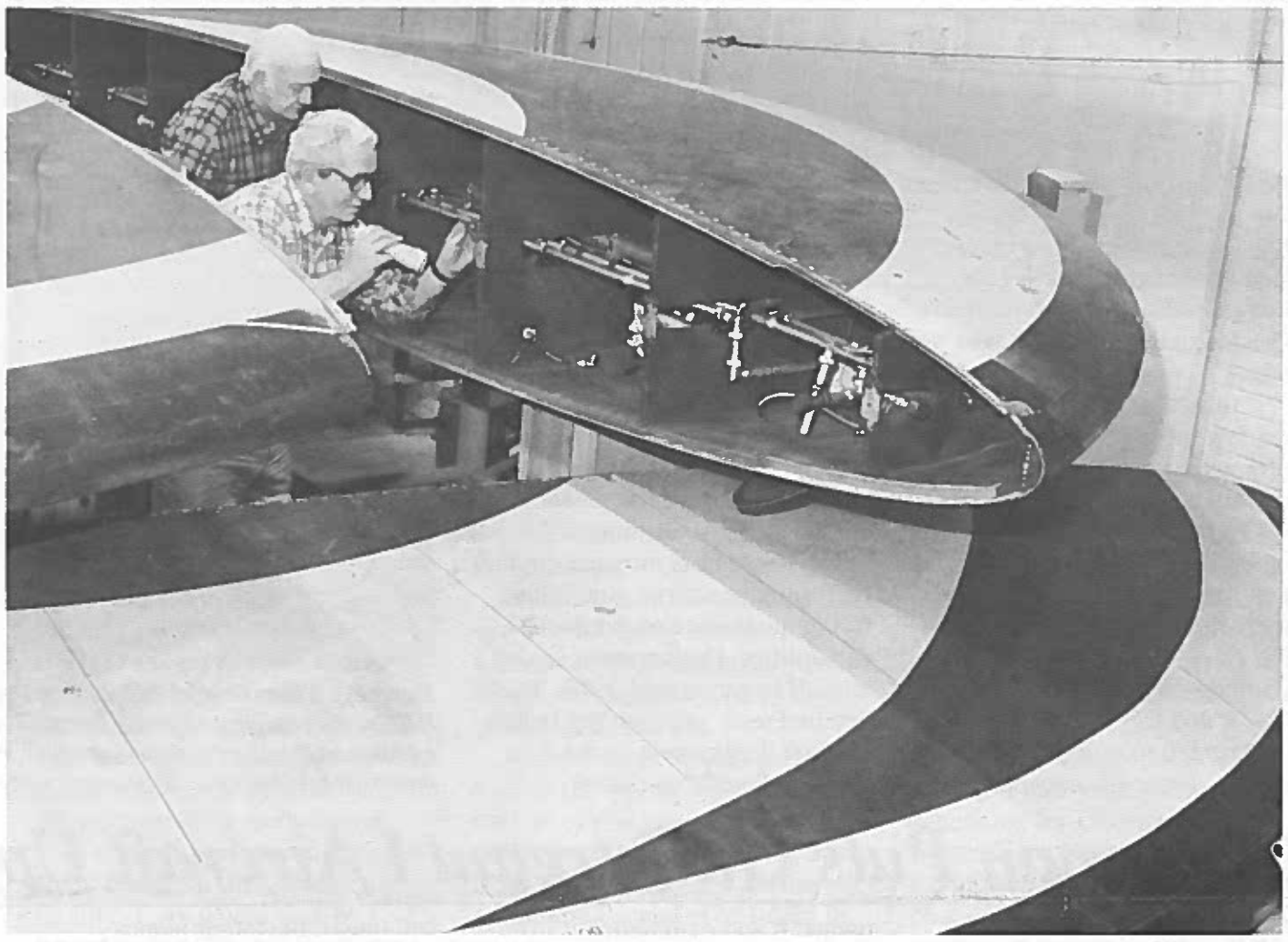
President George Bush made it clear in his first address to Congress February 9 that he favors multiyear procurement programs. With such programs, the government makes one large order covering several years instead of budgeting small quantities each fiscal year. This raises the production rate and lowers the unit cost.

The catch is, more money must be appropriated by Congress up front.

"Nothing in the fiscal year 1990 budget will be a cakewalk," says E-2C Program Vice President Harvey Fromer. "Congress is very wary of multiyear procurements, even though most other Western nations do it — Congress would give up its year-to-year prerogatives."

Navy production would go up to nine aircraft per year, from the current rate of six per year. Since aircraft are ordered several years in advance, these would all be Group II planes — containing the new overland radar, an enhanced processor, color displays, identification friend-or-foe, and communication systems. The first Group II aircraft will be delivered to the Navy in 1990; the multiyear planes would not join the fleet until 1992.

The Navy recently approved limited production of this next-generation Hawkeye. That approval followed the successful completion of preliminary and operational flight evaluations at the Naval Air Test Center, Patuxent River, Maryland.



The Inside Story. *In Building 4 in Bethpage, Long Island, Hilton Schultis and Joe Armstrong are working inside a mockup of an E-2C rotodome. An E-2C multiyear contract, now being considered by Congress, would significantly increase Grumman's production rate for these aircraft. (Photo by Bob Settles)*

The multiyear proposal requires an additional $200 million to be appropriated for E-2C's in fiscal year 1990, which begins this October. "We're going to have a battle," says Fromer. "But the Navy needs the Group II planes, the multiyear savings are real, the configuration is stable, and Grumman is capable of producing at an increased rate."

The E-2C is one of 32 multiyear proposals, which will result in a total long-term savings of $8.5 billion. Each has to be justified separately. If approved by the Armed Services Committees, the E-2C multiyear procurement must then go before the House and Senate Appropriations Committees. In addition to the Long Island delegation, Fromer has briefed Grumman suppliers about this effort, urging that they obtain the support of their own congressmen.

"About 40 percent of the cost of an E-2 is accounted for by Grumman production, engineering, overhead, and other costs," explains Fromer. "But about 60 percent of it is accounted for by suppliers. Both types of costs are affected by the current inefficient rate of production — and both would go down if the rate was increased.

The E-2C is already one of the most successful weapons exports, and this cost-saving method could make it even more marketable overseas. However, for foreign customers to share the cost savings of the multiyear program, Congress must first release the Group II aircraft for export — if not the entire electronics package, at least most of it.

"It's still too early to tell," says Fromer. "But from the response

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E-2C Multiyear Purchase Would Save Gov't $300M

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that we've been getting, it appears foreign military sale of Group II would be authorized — at least to countries such as Japan, Korea, and France."

The Japan Air Self Defense Force, which has a fleet of eight Hawkeyes, would probably be the first foreign customer to benefit from the cost savings. The Japanese legislature, the Diet, recently approved funding for three more E-2C's. Two more are expected in the following year's budget.

"If things go well for us in the next few months, the E-2C will become an extremely busy program between 1992 and 1997," says Fromer. "Due to the lead time required in procuring the aircraft, there's not much anybody could do to affect it between now and 1992."

Singapore, which has four E-2C's, and Egypt, which has five, are expected to order one. In addition, France is now building the first of its two aircraft carriers — and the E-2 is the only carrier-based airborne early warning aircraft. Korea is also strongly interested in the E-2C.

"One of our major objectives has been to get the production line up from one aircraft every two months to one a month," says Fromer. "With the multiyear procurement and foreign sales, we'd accomplish that. It would be a triple win situation — for the Navy, for Grumman, and for our foreign customers."

Meanwhile, yet another set of flight evaluations is under way at Patuxent River, involving the current Group I Hawkeye. The Group I Hawkeye has a new engine and partially-upgraded radar. These tests measure engine performance, carrier suitability, flying qualities, and avionics capabilities. Deliveries of Group I aircraft began in mid-1988. These detailed tests are required before the first deployment to the Western Pacific can occur.

Hawkeye Takes Shape. *In Building 2 in Bethpage, Ed Otero works on an E-2C's wing trailing edge. He is installing clips to hold hydraulic lines. In addition to the Navy's multiyear order, a number of foreign countries have proposed buying the early warning aircraft. (Photo by Bob Settles)*

Grumman Puts Gulfstream I Aircraft Up For Sale

After reviewing its flight operations, Grumman has decided to sell one of its three Gulfstream corporate aircraft.

The plane up for sale is a turboprop Gulfstream I, the ultimate in corporate aircraft in its day. "It's still one heck of a fine airplane," says Ted Faller, director of Flight Transportation, who was hired by Grumman when the first Gulfstream came out of flight test in 1958.

It's a beauty. Grumman built it, owned it and maintained it from day one. It is No. 193 of 200 Gulfstreams that Grumman built. It turned 20 years old last August 15.

Selling the plane will not affect the current Flight Transportation work force, Faller says. "Through attrition we had already been short two pilots and we maintained that level because of the reduction in force."

Beyond corporate budget tightening, Grumman wanted to sell one of the larger planes because of the changing Flight Transportation operation. Before, the Gulfstreams were used heavily for scheduled runs up and down the east coast, carrying Grummanites between the company's Long Island, Georgia and Florida sites.

"The company decided it shouldn't be in the airline business," Faller says. It's less expensive to let the decreasing number of Grummanites who fly this route take commercial air transportation. It's more efficient to use the corporate aircraft to help make Grumman's case on Capitol Hill and in the Pentagon. And three full-size corporate aircraft aren't necessary.

The company will keep its 30-year old Gulfstream I, the first Gulfstream built. Because it has a cargo door, Number 1 carried heart machines in missions of mercy, Lunar Module ascent engines, and contract proposals.

Though it doesn't have a cargo door, the newer Gulfstream I – FAA tail number N754G – has only 8,400 flight hours. That's relatively low time for a plane of its age, and Gulfstreams are notoriously tough airplanes. Nearly all Gulfstream I's are still flying, according to Faller. Number 193 also comes with plenty of avionics spares and, for the real collector, Flight Transportation will throw in the original brochure.

Creampuff: *Gulfstream I; lo-mileage, 1,700+ naut. mi/tankful; twin Rolls-Royce engines, one with recent overhaul; tenderly cared for by original builder/owner; seats 15 passengers and crew of three comfortably; blue &white w/gold trim ext. like new; gold int.; all power. Was $1 million-plus when new; asking $998,000. Call Ted Faller, seen here checking out the plane. (Photo by Ken Johnson)*

EIP Annual Meeting

The Grumman Employee Investment Plan will hold its annual meeting on Thursday, March 23, from 5 to 7 p..m. in the Headquarters' auditorium.

I wish to have the following topic discussed:

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Mail to: EIP C15-GHQ

Hush In The Air. *An EF-111 equipped with an Avionics Modernization Program trial kit undergoes tests in the "hush house" in Calverton, Long Island, which muffles the engine noise. Grumman recently bid on a second avionics upgrade project entailing 163 more F-111s. (Photo by Gerry Costello)*

Grumman In Running For More F-111 Mod Work

The F-111 fighter has been an Air Force mainstay since the late 1960s, thanks to continuous improvements enabling it to keep up with evolving technology. Just recently, Grumman submitted a proposal to the Air Force to produce avionics-upgrade kits for 163 more F-111s.

The project, named Pacer Strike, is for the F-111D and F-111F versions of the aircraft. It is quite similar to a current Grumman project, the Avionics Modernization Program for the F-111A, F-111F, and EF-111. That modification package is now being flight tested at McClellan Air Force Base, Sacramento, California.

"The Air Force has over 400 F-111s, in six versions," says Bob Walters, director, F/EF-111 Programs. "That includes 42 EF-111A's, which were modified from F-111A's by Grumman in the late '70s and early '80s to perform an electronic countermeasures role. A seventh version is flown by Australia's air force.

"The U.S. Air Force wants to upgrade them all, and the D and the F are the next in line," says Walters. "It is called Pacer Strike to distinguish this modification from the others."

Among the modifications in the Pacer Strike program are a new global positioning system, inertial navigation system, and multifunction displays. Grumman would provide the Air Force with a kit containing everything necessary to make these changes, such as software, cabling, wire harnesses, interface boxes, and any hardware required to hold new gear in place.

Unlike the Avionics Modernization Program, Pacer Strike includes a system called PAVE TACK, an existing bomb-guidance apparatus that had previously been installed on the F-111F. The Air Force wants this as an option for the F-111D: the bid includes versions of the kit with it and without it.

The Air Force will provide the winning contractor with both an F-111D and an F-111F, which would get stripped of the components to be replaced and then be used as mockups to locate the new systems. Eventually, both aircraft would be reconfigured with trial kits and would undergo flight testing at the Calverton facility. They would then be turned over to the Air Force for a year-long flight test program at the Sacramento Air Logistics Center.

Grumman would then build two additional proof kits, which Air Force maintenance personnel would use to evaluate the ease of doing the modifications — with Grumman assistance as required. All subsequent production kits would be installed by Air Force people, with no contractor involvement.

The design work would be done in Melville, Long Island; Grummanites in Bethpage, Great River, and Salisbury, Maryland, would make the kits.

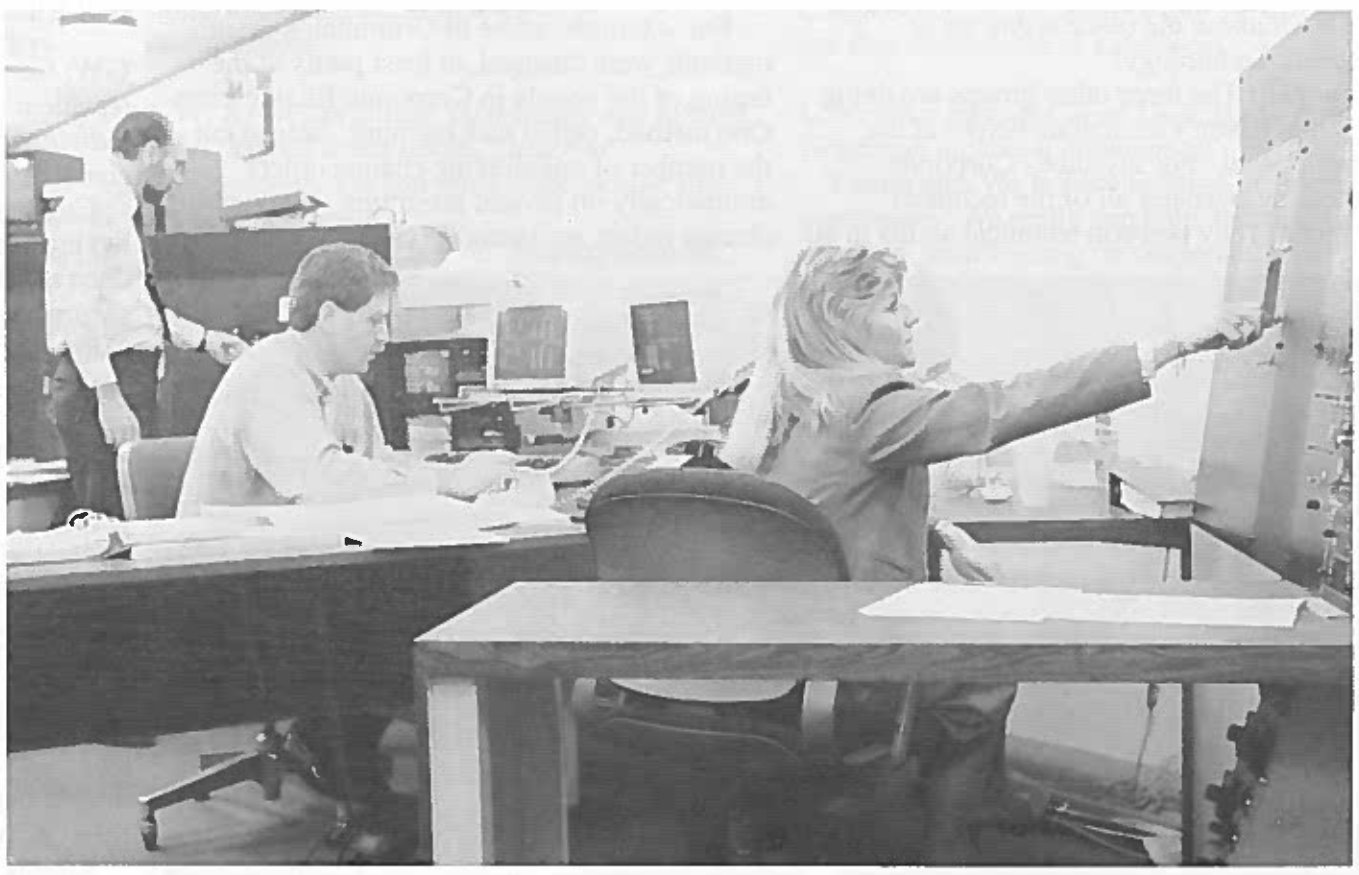
Walters would assign present staff to the new project. "By the middle of this year, the bulk of the AMP work will be over," he says, "and would coincide with the scheduled Pacer Strike award in mid-year."

Besides this project, Grumman intends to bid on an EF-111 Systems Improvement Program. This is a partial upgrade of the plane's jamming systems and will be a direct application of Grumman's previous experience in developing the entire tactical jamming system for the EF-111A.

"The plane's countermeasures suite was designed in the late 1960s," says Walters. "In the meantime, the electronic threat has become more sophisticated. The systems improvement would enable the EF-111 to counter late-1990s threats."

A request for proposal is expected mid-year, with an award scheduled for December. The Systems Improvement Program is a continuation, with some changes, of a project awarded to another contractor team in 1984. That project was subsequently terminated in late 1988.

"Right now, we're evaluating potential teammates for our bid," says Walters. "We really want to win this program. It is the type of systems integration Grumman does very well, and would retain us as the major integrator of the EF-111A."



Looking Into The Future. *Software engineer Sue Kenney, associate engineer Don Carlock (C) and technical specialist Bob Stacknowitz are part of the team developing software for the Advanced Capability version of the EA-6B. They work on software for the central mission and display computers in the program's labs in Melville, Long Island. The laboratories are new, having been opened only last year. The first Advanced Capability prototype is scheduled to fly in June. (Photo by Jim Wagner)*

An Interview With Vice Chairman Renso Caporali

'Corporate Technology Isn't Here To Collect Accolades. The Whole Idea Is To Bring About Some Change and Improvement....'

Grumman World recently interviewed Vice Chairman-Corporate Technology Renso Caporali. Corporate Technology was formed in October 1987. Highlights from that interview follow:

Grumman World: *How is Corporate Technology organized?*

Renso Caporali: We have five groups: the Corporate Research Center, Corporate Development Laboratories, Corporate Engineering, Technology Development and Advanced Concepts.

Now, you must understand that many people's jobs didn't change when we formed Corporate Technology in October 1987. Aside from a few changes in who reports to whom, the people in the Research and the Development groups have been relatively unaffected. The 150 or so people in Research continue to be responsible for defining and conducting Grumman's research programs.

There are 19 people in Corporate Development Laboratories and their role has been expanded. In addition to managing the William T. Schwendler Development Center and its technology development and simulation activities, they oversee all the developmental laboratories in the company.

GW: *What about the other segments of Corporate Technology?*

Caporali: The three other groups are doing things that haven't been done before at the corporate level. For instance, Corporate Engineering oversees all of the technical operations. They perform technical audits in all the divisions; they're working on engineering systems that several divisions can use. To a certain extent, they even get involved in personnel transfers.

Frankly, this 20-member group was less necessary when we had large, very distinct subsidiaries that were almost self-sustaining. But it is quite necessary as long as we're organized the way we are today. The main repository of engineering talent still remains in Aircraft Systems, yet there are also large contingents of technical people in several other divisions.

The 16 people in Technology Development direct the company's technical development programs and also help to direct the use of internal research and development funds. In short, they look at where Grumman is going and determine what is required to be technically prepared.

About eight people work in Advanced Concepts. Their job is to provide a forum for evaluating those ideas and proposals that really don't fit in with what any division is interested in today.

GW: *How did Corporate Technology perform in its first full year of operation?*

Caporali: Several significant things were accomplished in Grumman's technical community last year.

For example, some of Grumman's design methods were changed, at least partly at the urging of the people in Corporate Engineering. One method, called task teaming, helped cut the number of engineering change orders dramatically on several programs. Engineering change orders are issued to correct errors. With task-teaming, most errors are being caught before the final drawings are made. Task-teaming is saving Grumman a lot of dollars and schedule time on several new programs.

Each quarter, we attempt to quantitatively evaluate the benefits derived from Corporate Technology. It's difficult. It's not like you have two people and they're turning out 10 widgets a day and a guy comes up with an idea that says if you change the machine this way it can produce 20 widgets. However, I think Corporate Technology is making a real impact in the areas of new business, the technical planning process and the way we get the technical jobs done.

One of the reasons Corporate Technology will work is because of the people. Some very good people were brought into the organization.

'This is not something you can keep score on in one year.'

Where Corporate Technology is being accepted, it's been more for the people than the charter. When these people get involved, they can really help. They know technology and they know Grumman. They are making valuable contributions to the programs they deal with.

GW: *Corporate Technology performs technical audits of major programs. Haven't individual engineering departments always conducted these audits?*

Caporali: Yes, although I have to admit, having been there, that I don't think it was done nearly as well as today. There may be several reasons for that. One is that people in Corporate Engineering don't have some of the day-to-day administrative duties that the divisions' engineering department heads do. They can spend more of their time on technical oversight. And, for whatever it's worth, on the corporate level they can go in and examine with a little more authority.

In addition, they can be more objective. To a certain extent, when you are policing it and your people are doing it, it's a bit like correcting your own paper. The problems discovered do, after all, reflect on you. So with Corporate Engineering you can get better insight into what the problems are and how they can be resolved.

Among the intangible things we've provided is a corporate-level voice for Grumman's large contingent of technical people. Our group will ensure that strong emphasis is placed on technology at the corporate level. From the

Materials World. *In Bethpage's Building 12, Kathy Henault uses a rheometer or dynamic spectrometer to measure the viscosity of an adhesive material, which would be used in making composites. This experiment would help determine such a material's cure time.*

point of view of the individual engineer, group head or division engineering manager, it is their place to be heard. This is rather intangible and will take some time to have an impact on the technical community.

GW: *How receptive have people been to the technical audits?*

Caporali: You would probably have trouble going to various divisions and getting them to say that Corporate Technology came in and did some great work. You can probably ask them what they did to get a favorable audit result and never hear the mention of Corporate Technology.

That's good. Corporate Technology isn't here to collect accolades. The whole idea is to bring about some change and improvement in the company. And, in the process, the way to do that is to get people to adopt ideas as their own. That's when you know the idea has really been sold and accepted.

'Grumman must confine its appetite.'

For instance, Corporate Engineering sold some groups on task-teaming. Improvements have resulted, but you'd be hard pressed to find people who'd say,"Corporate Technology did this." That's the way it ought to be.

GW: *Has there been much duplication of effort in the divisions?*

Caporali: Not a great deal. It's very tempting to cite duplication as a major cause of inefficiency, but you have to be careful. I suspect that when it comes to real honest-to-goodness strict duplications — two groups doing precisely the same thing — that it 's almost non-existent.

If our people in Technology Development find two or more groups working on different aspects of the same things, they can open up communication between the groups. In the best of all worlds, if the groups were combined, the results might be greater than if the groups worked alone.

'CIE would take the computer-aided design and manufacturing system into the 21st century.'

GW: *What has Corporate Technology done in the area of planning?*

Caporali: Last year, we went through quite a different planning process than we've ever gone through before — and certainly not the way we'll ultimately do it.

As usual, the technology and new-business plans were submitted by the divisions. In addition, Corporate Technology staffs as well as other corporate staffs reviewed the plans and simultaneously began to format a road map for the corporation. It was like putting the cart in front of the horse. Frankly, we are still in the process of pulling the whole thing together.

It's not easy. Corporate Technology is trying to instill more discipline and direction in the various technical communities. Grumman must confine its appetite to things it can afford to see through to a successful conclusion.

At the same time, Grumman must focus its energies and resources so that it can bring in the projects it goes after.

Now, this is not something that you can keep score on in one year. Right now, it looks like Grumman is pursuing the right things — both technologically and from a business sense — but we're really not going to know for a while.

Crystal Science. *In Building 26 in Bethpage, Dr. Lou Casagrande runs a thermal test on the Large Bore Bridgman-Type Crystal Growth Furnace. The furnace grows cadmium telluride semiconductor crystals, which are used for infrared detectors. Grumman is trying to develop high-quality processes to manufacture its own crystals.*

GW: *When Corporate Technology was formed, critics called it just another layer of management. Do you think some people still harbor that view?*

Caporali: It depends on their experiences. For those helped by Corporate Technology it's more than another layer of management. Those who had to respond to a Corporate Technology initiative that they didn't particularly welcome would probably view it as another layer of management.

Grumman can't let problems go unresolved. As difficult as it might be to fix a problem, it's always easier to fix it up front than later on.

Some areas accepted Corporate Technology as a help mate from the start. Yet there are still areas that have not realized what Corporate Technology can do for them. That would probably be the case if it existed for 100 years. But I think all in all, it's working out reasonably well.

GW: *What areas is Corporate Technology looking at for future tools for engineers?*

Caporali: We're examining how we design our products. For example, Corporate Technology will play a significant role in getting the corporation into the era of CIE — computer integrated environment. We're going to have to use computers a lot more than we do now. CIE will affect the way we do our jobs. I'm not talking about just using a computer to help you design or manufacture. CIE would take the computer-aided design and manufacturing system into the 21st century. With this system, we'd do everything from original design work to parts orders to work orders to quality control. CIE will completely change our way of doing business. It would shortcut a lot of things that we do now.

Grumman will need that capability in place in the next decade.. Obviously if our competition introduces it before we do, we've got that much more of a problem.

GW: *What message would you like to give the Grumman technical community?*

Caporali: We're here to serve the technical community. We really can help, because we're aware of what's going on corporate-wide. Help is only a telephone call away.

Just A Phone Call Away

Corporate Technology has five segments. Here is a listing of those groups and the people who lead them.

Technology Development: Dick Anderson, vice president, 575-1997.

Corporate Research Center: Richard DeIasi, director, 575-2747.

William T. Schwendler Center: Chris Witt, director, 575-3623.

Corporate Engineering: John Strakosch, director, 575-2700.

Advanced Concepts: Dick Gran, director, 575-6156.

A Successful Conclusion. *A GQ team in Technical Services recently came up with a solution that will improve the division's approach to strategic business development. Pictured above are: (L to R) Bill MacFarlane, Wiley Williams and Mike Lenzo.*

GQ Gives Technical Services Better Aim At New Business

Defining roles — that's the solution for a GQ team's problem in the Technical Services Division in Titusville, Florida.

The task was to improve the division's approach to strategic business development.

The group had determined that two of the division's business units were competing for the same business. This was creating confusion internally and with the customers.

The team's solution includes clearly defining the roles and missions of the Field Engineering and Operations and Maintenance units as well as developing an organizational function for pursuing interdivisional business opportunities.

Both units are responsible for maintenance, refurbishment, and operation of electronic equipment including systems aboard aircraft, ground support equipment, simulators and trainers.

"The overlap would occur when both groups would seek new business at the same military installation, for example," explains Patrick Ranieri, director of Resources.

New roles have been identified. Field Engineering will support Grumman-built products in the field. Responsibilities will include aircraft support programs, modifications, site activation, support equipment, trainers and simulators.

Operations and Maintenance will service products built by other companies including aircraft systems, ground support equipment, simulators and commercial electronic systems.

"Now both groups have a clear focus of what their target markets are," says Ranieri.

To further improve business development, the group has suggested the creation of a new position - deputy director of Interdivisional Business Development. This person will perform a variety of technical, marketing, and analytical functions to help seek out interdivisional opportunities.

The position will also include assisting other divisions in using Technical Services' expertise when pursuing new business.

"We're hoping this new post will help find ways to best use our resources across the divisions," says Ranieri. "While our support may help another division get new business, finding out what support we could get from the other divisions may let us go after more business as well."

The group has written a job description for the new position and will post the opening in the next several weeks.

This is Technical Services' first GQ team. Members include top management from the division's headquarters and its operating units.

Team Members

Wiley Williams, president, Technical Services Division

Robert Bozza, vice president and controller, Business Operations

Joe Krojeski, manager, Simulator Support Program

Mike Lenzo, director, Operations and Maintenance

Pat Ranieri, director, Resources

Bill MacFarlane, director, Personnel Services

George Tomlinson, director, Field Engineering

Ed Sachs, director, Business and Financial Operations

Reduce Your Risk — Enjoy A Healthier Heart

Was the heart you gave to your valentine a healthy one?

Unfortunately, the American Heart Association reports that over 64,000,000 Americans suffer from some form of heart or blood vessel disease. That's almost one-fourth the U.S. population.

February is Heart Month and the Medical Department would like Grummanites to know that there are ways to keep your heart in good shape.

"Genetic and behavioral studies show that certain conditions are more prevalent in people who develop cardiac and circulatory system diseases," says nursing coordinator, Ada Colter. "These conditions are called *risk factors* ."

The risk factors are divided in two — those which, if desired, can be changed, and those which cannot. While heredity, sex, race and age are not controllable, smoking, poor diet, obesity, alcohol abuse, lack of exercise and stress are all factors people can change.

"For example," says Colter. "It's reported that while women have a lower incidence of blood vessel disease than men, black people have a 45 percent greater chance of developing hypertension, which leads to heart attack and stroke. We also know that the death rate from heart disease increases as we age.

"Although these factors appear to be hereditary, a family physician can suggest guidelines to help people control factors such as hypertension, high blood cholesterol and diabetes, all of which contribute to heart disease," says Colter.

Heart attack is the leading cause of death in America, according to the American Heart Association. This year as many as 1,500,000 Americans will have a heart attack. About 540,000 of them will die. Based on the Framingham Heart Study, five percent of all heart attacks occur in individuals under age 40, and 45 percent occur in individuals under age 65.

The human heart is a muscle that pumps blood. It has its own blood vessels, the coronary arteries that nourish it and keep it alive. In most cases when a heart attack occurs, fatty deposits, composed of mostly cholesterol, have lined the coronary arteries. As these deposits build up, they progressively narrow the arteries and decrease or stop the flow of blood to the heart.

When there's a decreased flow of blood to the heart, it may be damaged. When there's a complete blockage of the flow of blood so that the heart can't get the oxygen and food it needs, a part of the heart may actually die. This is a heart attack.

"If you feel pressure, fullness, squeezing or a pain in the center of your chest and your discomfort lasts for two minutes or longer, you could be having a heart attack," says Colter.

Sweating, dizziness, fainting, nausea, a feeling of severe indigestion or shortness of breath also may occur. However, not everyone experiences all symptoms at the same time.

It's important not to deny any of these symptoms. The American Heart Association reports that more than 300,000 heart attack victims died before reaching the hospital last year, many of them because they refused to take their symptoms seriously.

The Heart Association suggests that if you think you are having a heart attack, call your local emergency medical service immediately. If they are not available, get to a hospital offering emergency cardiac care as soon as you can.

The Medical department is available for counseling on how to help prevent heart disease and heart attacks. If you have any questions, call Colter at (516) 575-3723.

Personals

My family and I wish to extend our gratitude to the ESO and fellow employees for their sympathy, prayers, beautiful flowers and support shown during the recent loss of my brother. **Ed Raulsome**

I would like to extend my sincerest gratitude to all my friends at Grumman for their concern, visits, calls and good wishes during my recent illness and recuperation. **Lou Napoli**

I wish to thank my friends and co-workers in buildings 112 and 115 for all their kindness and sympathy during the recent loss of my mother. Your support was welcomed; it helped me a great deal. **Marion Cozzi**

My family and I wish to extend our sincere appreciation and thanks to all of our friends and to ESO for their kind expressions of sympathy and support during the recent loss of my mother. **Pete Dutton**

I wish to thank all my friends at Grumman including the people at Stuart, Florida, and the ESO for their prayers, cards, fruit baskets, plants and gifts during my recent illness. May God bless each of you. **Barbara Young**

We would like to express our sincere thanks to all of our friends at Grumman who helped us through the sudden passing of my husband Francis X. Ruziska. Your cards, prayers, flowers and sincere expressions of love were greatly appreciated. **Irene Ruziska, Diane, Paul, David and Gregory Zona**

A. L. Cimino

L. R. Cozza

K. R. Deel

F. A. DelSolo

F. J. Delaney

R. L. DiTieri

L. D. Dixon

A. M. Gurkewitz

Service Milestones

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Joseph Domanski, Bethpage, Aircraft Systems

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David D. Boyce, Bethpage, Aircraft Systems
George W. Brown, Stuart, Aircraft Systems
Otto A. Christen, Stuart, Aircraft Systems
Robert Gedney, Melville, Aircraft Systems
Joseph F. Heavey, Bethpage, Aircraft Systems
Bertil G. Lindgren, Bethpage, Corporate Services
Harold Martinsen, Bethpage, Aircraft Systems
Herman P. Michaels, Bethpage, Aircraft Systems
Robert C. Noe, Bethpage, Aircraft Systems
Paul A. Riedener, Bethpage, Aircraft Systems
Michael Stanco Jr., Bethpage, Aircraft Systems
Cosmo D. Strigaro, Bethpage, Aircraft Systems
Rocco Truglia, Bethpage, Aircraft Systems
George W. Yarrington, Milledgeville, Aircraft Systems
John Zarodkiewicz, Melville, Aircraft Systems

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Bernard L. Brooks, Bethpage, Aircraft Systems
Kenneth R. Doe, Melville, Aircraft Systems
Ingolf H. Henriksen, Bethpage, Corporate Services
Frank P. Lagonigro, Melville, Aircraft Systems
George E. Landin, Bethpage, Aircraft Systems
Louis J. Lovisek, Bethpage, Aircraft Systems
John A. MacKnight, Melville, Aircraft Systems
Regina A. McKenna, Melville, Aircraft Systems
Jasper E. Messina Jr., Bethpage, Corporate Services
William J. Murphy Jr., Bethpage, Aircraft Systems
John A. Neyssen Jr., Calverton, Aircraft Systems
John O'Brien, Bethpage, Grumman Corporation
Robert D. Penza, Los Angeles, Aircraft Systems
Bernard J. St. John, Bethpage, Aircraft Systems
Robert E. Watkins, Stuart, Aircraft Systems
Florence Wimpfheimer, Bethpage, Data Systems

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Ronald E. Boyland, Bethpage, Space Systems
Bernard C. Capone, Tel Aviv, Aircraft Systems
Vincent J. Crafa Jr., Bethpage, Aircraft Systems
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What's On The Tube? *Melbourne Systems engineer Bob McElhiney recently Great River Operations on Long Island to test a digital video buffer that's part of the Joint STARS system. McElhiney is a member of Melbourne's Instrumentation group in Florida.*

Taxpayers, Beware Of Changes

Along with your holiday bills and belated holiday greeting cards, you received your annual gift from the Internal Revenue Service. You are not alone. The IRS issued its 1988 tax forms to more than 101 million taxpayers.

The 1988 forms should look a bit familiar — they are largely unchanged from their 1987 predecessors.

"Two trouble spots on last year's forms, however, have been changed for 1988," says Doug Dahlgard, director of Corporate Tax. "Since some filers failed to check the box indicating their dependency status, line 4 of form 1040EZ has been graphically altered to help direct taxpayers to the correct standard deduction. Standard deduction figures have been entirely removed from the 1040 and 1040A forms and you are now directed to a chart in the instruction booklet."

The 1988 forms reflect a number of law changes:

• *Reduced Rates* - The tables now reflect only three tax rates - 15, 28 and 33 percent.

• *Increased Exemptions* - In 1988, it increased to $1,950 per exemption from $1,900 in 1987.

• *Increased Standard Deductions* - For singles the standard deduction climbed from $2,540 to $3,000 for 1988. Married couples filing jointly now can claim a $5,000 deduction, up from $3,760 in 1987. For couples filing separately, it rose from $1,880 to $2,500, and for heads-of-household, the deduction increased from $2,540 to $4,400.

• *Consumer Interest* - This deduction is only 40 percent deductible in 1988 vs. 60 percent in 1987. This drops to 20 percent in 1989; 10 in 1990 and is eliminated entirely in 1991.

"And, before anyone can get used to the 1987 rule changes for home-mortgage interest deductions," says Dahlgard, "the rules have been changed again for 1988. The good news is most taxpayers will be able to deduct all their home mortgage and home equity interest even if their deduction was limited for 1987."

Here are some tax changes you should be aware of.

Mortgages

Interest on acquisition and improvement debt is deductible on your main and second home provided the mortgage is secured by your home. Generally, a mortgage is secured only if the mortgage is recorded. A new limitation is effective in 1988 on the total mortgaged amount permitted by an individual. A cap of $1 million is placed on new mortgages. Only the interest incurred on mortgage debt of $1 million (main and second home) will be fully deductible in 1988 and thereafter. The $1 million cap is *not* applicable for mortgages taken out before October 14, 1987. Old mortgages are not subject to limits.

Home Equity Loans

In 1988, taxpayers who have home equity loans up to $100,000 can use the proceeds for any purpose, and still deduct all the interest. In 1987, equity loans were subject to limits based on cost, or proceeds had to be used for medical or educational expenses to deduct the interest. Home equity loans must also be secured by your main or second home.

Refinanced Mortgages

If you refinanced your mortgage after October 13, 1987, for no more than the balance of the existing mortgage, all the interest is deductible in 1988. If you refinanced your mortgage for *more* than the existing mortgage, different rules apply in determining how much interest is deductible in 1988. How you spend the proceeds determines how much interest is deductible.

If the proceeds are used to improve your home, all the interest is deductible and your total mortgage is subject to the $1 million cap mentioned above. If the proceeds are used for *other than* home improvements, the home equity rules apply. This means if the proceeds do not exceed $100,000 all the interest is deductible. If the proceeds exceed $100,000, the interest on the *excess* is only partially deductible in 1988 (40 percent). This percentage drops to 20 percent in 1989, 10 percent in 1990 and zero thereafter.

New Yorkers Might Be In For Tax Surprise

"Many New Yorkers may be surprised that they owe more than expected this April 15th," says Doug Dahlgard, Grumman's director of Corporate Tax.

Changes in the law dropped personal exemptions for taxpayers and spouses last year, lowered the rates and increased the standard deduction.

"The changes were part of New York State's tax reduction phase-in, but the State never adjusted the withholding tables. New York assumed incorrectly that taxpayers would adjust the number of their withholding exemptions to compensate," adds Dahlgard. "To avoid a last minute surprise it may be a good idea to look at your 1988 return early."

Withholding changes for 1989 can be made by filing a new IT-2104 form with Personnel Records, EO9-GHQ. These forms are available in all Employee Services offices and from your administrator.

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Obituaries

Gordon J. Alger of Detail Parts Fabrication, Bethpage, Aircraft Systems Division, died Feb. 4 at the age of 61. He had been with the company since 1941 and resided at 26 Taylor Dr., Farmingdale, N.Y.

John L. Caulfield of C-2A/E-2C Assembly, Bethpage, Aircraft Systems Division, died Jan. 22 at the age of 60. He had been with the company since 1948 and resided at 201 Justice St., West Babylon, N.Y.

Vivian T. Dooley of Customer Supply Requirements Management, Melville, Aircraft Systems Division, died Jan. 26 at the age 57. She had been with the company since 1965 and resided at 1070 Hicksville Rd., Seaford, N.Y.

George D. McCormack of Pricing and Analysis, Bethpage, Corporate Services Division, died Jan. 21 at the age of 66. He had been with the company since 1967 and resided at 3925 Fulton Ave., Seaford, N.Y.

Sydney J. Turner of Mechanical Structural Assemblies, Great River, Electronics Systems Division, died Jan. 31 at the age of 47. He had been with the company since 1969 and resided at 109 Yale Ave., Oakdale, N.Y.

Retiree Obituaries

William R. Alcide of 5 Saddle La., Levittown, N.Y., died Jan. 20, 1989. He retired in 1977.

John Caroll of 934 Baxton St., Uniondale, N.Y., died Jan. 28, 1989. He retired in 1987.

Helen Caruso of 600 North Broadway, Amityville, N.Y., died Jan. 22, 1989. She retired in 1973.

Pasquale Daddezio of 265 N. 5th St., Lindenhurst, N.Y., died Feb. 4, 1989. He retired in 1965.

John Derr of 22 Balfour Dr., Bethpage, N.Y., died Jan. 31, 1989. He retired in 1970.

Frank Z. Doroski of 2575 Sound Ave., Mattituck, N.Y., died Sept. 30, 1988. He retired in 1978.

Alexander Ferrara of 9197 SW 16th St., Boca Raton, Florida, died Jan. 29, 1989. He retired in 1978.

Alex Ledereich of 1985 Ocean Ave, Brooklyn, N.Y., died Dec. 24, 1988. He retired in 1988.

George Maitland of 559 Waverly Pl., East Meadow, N.Y., died Feb. 1, 1989. He retired in 1970.

John B. Morrow of 134 Florence Dr., Milledgeville, Georgia, died Jan. 20, 1989. He retired in 1983.

Ernest A. Overton of 16 Renown St., Lake Grove, N.Y., died Jan. 29, 1989. He retired in 1965.

Olga C. Peters of 17 Huff St., Waterloo, N.Y., died Feb. 2, 1989. She retired in 1983.

Jack Pollack of 899 Newton Ave., Baldwin, N.Y., died Jan. 17, 1989. He retired in 1968.

Dorothy J. Smith of 56 Whispering Pines, Bloomingburg, N.Y., died Feb. 1, 1989. She retired in 1986.

Elbert M. Stever of 8710 Overlook Rd., McLean, Virginia, died Dec. 10, 1988. He retired in 1978.

James H. Swindells of 14 Grace Ct., Islip, N.Y., died Jan. 23, 1989. He retired in 1976.

James W. Whalen of 69 Wilson Blvd., Islip, N.Y., died Dec. 5, 1988. He retired in 1985.